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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/027,046	12/20/2001	Alexander M. Shukh	S01.12-0851/STL9652	2220

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EXAMINER	
DAVIS, DAVID DONALD	
ART UNIT	**PAPER NUMBER**
2652	

DATE MAILED: 12/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/027,046	SHUKH ET AL.	
	Examiner	Art Unit	
	David D. Davis	2652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) *19* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-18 and 20-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. In response to the pre-appeal conference decision November 1, 2005, the following final rejection can be found infra.

Election/Restrictions

2. Claim 19 is withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on February 14, 2005.

3. Applicant's election with traverse of claims 1-18, 20-22 and 24-25 in the reply filed on February 14, 2005 is acknowledged. The traversal is on the ground(s) that examination is not a serious burden. This is not found persuasive because the claims are patentably distinct.

The requirement is still deemed proper and is therefore made FINAL.

4. This application contains claims drawn to an invention nonelected with traverse in a communication received February 14, 2005. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

6. Claims 1, 9, 10, 13, 14 and 21-25 are rejected under 35 U.S.C. 102(a) as being anticipated by AAPA (applicant's admitted prior art). AAPA shows in figure 1 a head 130 for use with a magnetic medium 1102 moving in a first direction 172. The head 130 has a perpendicular writing element 134 including a main pole 144 having a main pole tip. A return pole 140 is connected to the main pole 144 at a back gap and having a return pole tip positioned from the main pole 144 in the first direction. A write gap is between the main and return poles, and a conductive coil 150 is adjacent the main and return poles. *An area* of a magnetic medium 102 facing surface of the main pole tip is less than *an area* of a magnetic medium 102 facing surface of the return pole tip. Figure 1 of AAPA also shows a reading element 136 positioned in a second direction that is opposite the first direction from the perpendicular writing element and including a top shield 140, a bottom shield 142 in the second direction from the top shield, and a read sensor 138 positioned between the top and bottom shields.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various

claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2, 3, 7-8, 11-12, 15, 16 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA in view of Lin. AAPA discloses the claimed invention. See description, supra.

AAPA is silent as to the materials of the main and return pole; a non-magnetic layer between the shield and pole, and gap and non-magnetic layer thickness.

Lin discloses in section [0021] that the main and return poles are formed of a magnetically permeable material selected from a group consisting of CoZr, CoZrNb, $Ni_{45}Fe_{55}$, FeN, FeAlN, cobalt-iron (CoFe), cobalt-nickel-iron (CoNiFe), nickel-iron (NiFe), and iron (Fe). Lin shows in figure 3 a non-magnetic layer 32 separating the top shield 26 from the writing main pole 22, and Lin discloses in section [0021] that the non-magnetic layer is approximately 1 micrometer or greater. Lin discloses in section [0022] that a gap layer 33 defines the write gap of approximately l micrometer or less.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify that the pole of the applied prior art is selected from a group consisting of CoZr, CoZrNb, $Ni_{45}Fe_{55}$, FeN, FeA1N, CoFe, CoNiFe, NiFe and Fe and specify that a non-magnetic layer of the applied prior art is formed of a conductive layer sandwiched

between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten as taught by Lin. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify that a pole is selected from a group consisting of CoZr, CoZrNb, $Ni_{45}Fe_{55}$, FeN, FeA1N, CoFe, CoNiFe, NiFe and Fe and specify that a non-magnetic layer is formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten , which is well within the purview of a skilled artisan and absent an unobvious result, because of the known magnetic properties for the poles and the known conductive properties of the conductive layer.

It further would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify the thickness of the non-magnetic layer and the thickness of the gap layer of the applied prior art to be 1 micrometer or greater and 1 micrometer or less, respectively, as taught by Lin. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify the thickness of the non-magnetic layer and the thickness of the gap layer of the applied prior art to be 1 micrometer or greater and 1 micrometer or less, respectively, which is well within the purview of a skilled artisan and absent an unobvious result, so as to optimize the writing of information to the magnetic disc.

10. Claims 4-6 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over AAPA. AAPA discloses the claimed invention. See description, supra.

However, AAPA is silent as to the non-magnetic layer being formed of silicon oxide, silicon nitride, aluminum oxide or tantalum oxide. AAPA is also silent as to the non-magnetic

layer being formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten.

Official notice is taken of the fact that a non-magnetic layer being formed of silicon oxide, silicon nitride, aluminum oxide or tantalum oxide or a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten is notoriously old and well known in the magnetic head art.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify that a non-magnetic layer of AAPA is formed of silicon oxide, silicon nitride, aluminum oxide or tantalum oxide as taught in the art.

The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify that a non-magnetic layer is formed of silicon oxide, silicon nitride, aluminum oxide or tantalum oxide, which is well within the purview of a skilled artisan and absent an unobvious result, because of the known insulative properties of the insulative layer.

It also would have been obvious to a person having ordinary skill in the art at the time the invention was made to specify that a non-magnetic layer of AAPA be formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten as taught in the art. The rationale is as follows: one of ordinary skill in the art at the time the invention was made would have been motivated to specify that a non-magnetic layer is formed of a conductive layer sandwiched between insulating layers with the conductive layer being copper, aluminum, tantalum, or tungsten, which is well within the purview of a

skilled artisan and absent an unobvious result, because of the known conductive properties of the conductive layer.

Response to Arguments

11. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Davis whose telephone number is 571-272-7572. The examiner can normally be reached on Monday thru Friday between 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A. L. Wellington can be reached on 571-272-4483. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David D. Davis
Primary Examiner
Art Unit 2652

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